DOCUMENT RESUME

ED 184 251 EA 012 589

TITLE	Focus On: Energy Conservation Practices in Schools.
INSTITUTION	Massachusetts State Dept. of Education, Boston.
PUB DATE	80
NOTE	33p.; Massachusetts Dissemination Project. Not available in paper copy due to small print of original document.
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Building Operation; *Cost Effectiveness; *Educational Facilities Improvement; *Efficiency; *Energy Conservation; Facility Guidelines; Information Dissemination; Pamphlets; School Districts
IDENTIFIERS	*Massachusetts

ABSTRACT

This pamphlet briefly describes 23 effective energy conservation programs in Massachusetts schools today. These practices range from changes in classroom lighting fixtures to complete heating system redesign. Each program represents an effort by school systems to adapt to changing energy needs and available resources. Each entry describes the program, cites the cost savings, and lists the level of practice and the contact person. Sources for case study materials on these practices are listed. (Author/MLF)

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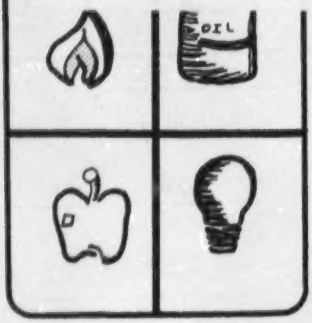

ED184251

FOCUS ON:

ENERGY CONSERVATION PRACTICES IN SCHOOLS

WINTER 1980

MASSACHUSETTS
DISSEMINATION
PROJECT

MASSACHUSETTS DEPARTMENT OF EDUCATION

EA 012 589

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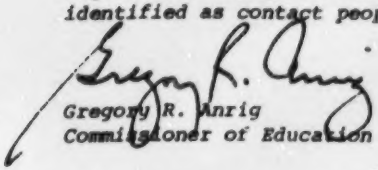
COMMISSIONER'S LETTER

The Massachusetts Board of Education has adopted the general priority to assist local school districts to improve efficiency and cost effectiveness in school district operations. In line with this priority, the Massachusetts Department of Education has initiated efforts to disseminate promising business practices for consideration by school systems across the state.

This publication, which contains descriptions of a number of successful energy conservation practices, is the first in a series of planned publications focusing on promising practices in Massachusetts. Practices were verified through the joint efforts of the School Superintendents' and School Business Officials' Associations.

School officials are encouraged to consider adoption of these practices. The described practices have resulted in cost savings in school districts across the state. In a number of instances, these practices can be replicated and do not require major capital outlay. Through the cooperation and support of the U.S. Office of Education Region I, case study materials on these practices have been prepared. These materials are available at the regional education centers of the Department (see inside back cover for addresses) and at the Merrimack Education Center. Inquiries can also be directed to school officials identified as contact people in the abstracts.



Gregory R. Anrig
Commissioner of Education

FOCUS ON: *is a series of brief publications developed by the Massachusetts Dissemination Project. Like the* RESOURCES FOR SCHOOLS *series,* FOCUS ON: *presents timely information and resources directed toward a critical educational issue confronting Massachusetts educators. The compact size and the limited number of copies printed allow the project to be more responsive and sensitive to the rapidly changing information needs of particular readers. The project welcomes your comments about this issue in the* FOCUS ON: *series, and your suggestions for future issues.*

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The MASSACHUSETTS DISSEMINATION PROJECT
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in conjunction with:
The MERRIMACK EDUCATION CENTER

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USING THIS INFORMATION

ENERGY CONSERVATION PRACTICES IN SCHOOLS *briefly describes twenty-three effective energy conservation programs in Massachusetts schools today. These practices range in sophistication (and cost) from changes in classroom lighting fixtures to complete heating system redesign. Each program represents an effort by school systems to adapt to changing energy needs and available resources.*

We hope that business managers, teachers, and administrators will use this information as a resource in the develcpment of their own energy conservation plans. Names of local school district staff have been included to encourage communiciation among school districts.

In addition to these brief descriptions, case studies have been prepared and are available at Department of Education regional education centers and at the Merrimack Education Center, 101 Mill Road, Chelmsford, MA 01824. Supplementary information available at the Merrimack Education Center, may be located by the energy file number (EF 000) listed in each abstract.

ENERGY CONSERVATION PRACTICE *Agawam Public Schools*

DESCRIPTION

A long range plan to reduce energy costs was begun in the school year 1971-72. Within this plan was the education of all system personnel to energy cost escalation and a concomitant program of capital investment--including boiler modernization, the rebuilding of condensate traps, and the repair/replacement of thermostats. Energy usage per square foot was measured for each of nine schools. Semi-annual reports issued to administrators and custodians fostered a spirit of competition toward conservation. Technical assistance was provided to custodians by an in-house electrician. The program, then, was two-fold--school personnel awareness as well as pragmatic operational support.

EFFICIENCY (assurances/claims or cost savings)

Over a three year period $100,000 was expended for capital investment measures with an estimated annual savings of $35,000 to $40,000. Energy costs for FY '79 were maintained at the FY '74 level. Oil consumption was down from 480,000 gallons (FY '74) to 234,000 gallons (FY '79) and kilowatt-hours were cut from 3,129,000 to 1,840,000 for the same period.

LEVEL OF PRACTICE *District Wide*

EF# *101*

CONTACT PERSON

James H. Coon, Jr.
Director of Business Services
1305 Springfield Street
Feeding Hills, MA 01030
(413) 789-1400, Ext. 436

ENERGY CONSERVATION PRACTICE *Arlington Public Schools*

DESCRIPTION

Arlington began energy conservation measures with CETA funds. Since that time, the minimal expenditures required by the program have been absorbed into the local budget. At the basis of Arlington's effort is an effective monitoring program which allows tracking on energy consumption. To gauge the success of energy conservation practices and to determine whether or not a building is energy efficient, an Annual Efficiency Index (A.E.I.) is taken. Walk-through audits were conducted in each of the system's fifteen schools to identify low cost areas for correction. Twenty areas were targeted for correction or implementation. Among these are the development of a form for school personnel to monitor and control oil deliveries and check readings on electric and gas meters. Plans were also developed for major capital expenditures to implement conservation practices. The school system works in close cooperation with the town to effect an energy program for the community as a whole.

EFFICIENCY (assurances/claims or cost savings)

An overall energy savings of 20 percent during a two year period is attributed to a low cost conservation program. Expenditures for redirecting existing personnel were minimal as were those for supplies and materials.

LEVEL OF PRACTICE *District Wide*

EF# *102*

CONTACT PERSON *Jerry Houghton*
Business Manager
23 Maple Avenue
Arlington, MA 02174 (617) 646-1000

ENERGY CONSERVATION PRACTICE *Attleboro Public Schools*

DESCRIPTION

The administration of the Finberg School received a mandate from the insurance inspector to replace the boilers, both of which dated to 1929. When it was determined that installation of a new heating system by a private company would cost in excess of $70,000, alternative ways for compliance were investigated. A civil engineer was retained to prepare drawings and specifications for boilers, burners, and controls. Jobs were then analyzed and broken down into components for subcontracting to smaller companies proven to operate at costs below those of larger firms. Work was begun with a $30,000 appropriation; additional funds were drawn from the maintenance budget. The following year this successful project was replicated at another school.

EFFICIENCY (assurances/claims or cost savings)

Oil consumption was reduced by 9,608 gallons in FY '78, and further, by 4,804 gallons in FY '79.

LEVEL OF PRACTICE *Single School*

EF# 115

CONTACT PERSON

Robert J. Siminski
Director of Funds and Facilities
Rathbun Willard Drive
Attleboro, Ma. 02703
(617) 222-0012

ENERGY CONSERVATION PRACTICE	*Blackstone-Millville Regional School District*

DESCRIPTION

One facet of Blackstone's conservation program centered on lighting adjustments in an elementary school. At the A.F. Maloney School gym all 500 watt incandescent bulbs were replaced with 175 watt mercury vapor lights. This resulted in a monthly 8 percent reduction in kilowatt-hour usage. There was no need to use staging to replace the bulbs. Other energy conservation measures date from 1976 and include delamping, adjustment of the dampers in the ventilating/heating system, changes in entrances and exits, and significant modifications in the building envelope of the oldest school in the system.

EFFICIENCY (assurances/claims or cost savings)

$469.10 was expended in lighting changes to achieve an 8 percent reduction or 366 kilowatt-hours monthly in electrical usage.

LEVEL OF PRACTICE *Single School*

EF# *116*

CONTACT PERSON	*Mr. Thomas J. Cullen* *Superintendent of Schools* *Lincoln Street* *Blackstone, MA 01504* *(617) 883-9203*

ENERGY CONSERVATION PRACTICE *Brockton Public Schools*

DESCRIPTION

Brockton is a large urban system of forty-five school buildings. During the past three years an extensive program of insulation has been in progress with significant benefits in fuel cost reduction and improved building comfort. Since labor for the project was provided by CETA workers, the city was responsible solely for the purchase of materials which kept costs down. It was reported that schools built since 1950 were more in need of insulation than those of a much older vintage. Additional savings were realized through the creation of a position for a control mechanic, thereby eliminating the necessity for costly contracting services. Other energy saving measures were the installation of fluorescent bulbs in place of incandescent and the replacement of old boilers, steam traps, thermostats as well as malfunctioning pneumatic controls. In July, 1979 an energy task force held its first meeting. This task force will formulate an energy policy for school department approval. Cooperation by all involved is noted as being vital to an effective conservation program.

EFFICIENCY (assurances/claims or cost savings)

A total one time charge of $55,000+ was invested in capital projects. The resultant savings in a one year period tallied $100,000 for electricity and $50,000 for fuel.

LEVEL OF PRACTICE *District Wide*

EF# 124

CONTACT PERSON *John J. Dorgan, Jr.*
Building Supt.
Office of Supt. of Bldg.
City Hall
Brockton, MA 02401 (617) 580-1100

ENERGY CONSERVATION PRACTICE *Burlington Public Schools*

DESCRIPTION

One selected practice in Burlington was a reduction in electrical consumption through lighting modifications. The prototype classroom at the Burlington High School has thirty fixtures, each with two 40 watt fluorescent lamps. Desk top light meter readings were 140-180 footcandles. Changes consisted of totally deactivating nine fixtures, installing one 34 watt lamp and one Phantom Tube in eighteen fixtures, and replacing 40 watt lamps in three fixtures over the blackboard. After these adjustments, the light meter reading showed a desk top illumination of 30 footcandles. Since the ballasts (replaceable attachments to the fluorescent fixture) in the modified fixtures run cooler, their lifespan is longer. The total conservation program at Burlington is based on a plan submitted to the school committee by the director of plants and facilities. To get the program off the ground, inservice programs and workshops were held for administrators, teachers, and custodians; energy education materials were distributed; walk-through audits were conducted in each building; and responsibility for monitoring and enforcing conservation measures was assigned by administrative directive.*

EFFICIENCY (assurances/claims or cost savings)

For the specific practice on lighting conservation a $186 expenditure in the prototype classroom resulted in an annual savings of $203. The payback period is eleven months.

** A footcandle is a measure of the area and degree of illumination on a given surface.*

LEVEL OF PRACTICE *District Wide*

EF# *106*

CONTACT PERSON

Bernard Maslow
Director, Plants and Facilities
Center Street
Burlington, Ma. 01803
(617) 273-1870 Ext. 214

ENERGY CONSERVATION PRACTICE *Cambridge Public Schools*

DESCRIPTION

Cambridge reported on one practice selected from many. The objective for one large all-electric elementary school was to capitalize on available energy conservation measures. A bid process was undertaken by the school department which focused on the length of payback, a specific savings guarantee, and sound bidder qualifications. The accepted vendor contracted to install their computerized energy control/maintenance system, TABS (Time-shared Automated Building Service). Other work was targeted at domestic hot water conservation, lighting changes, and repair of the heating, ventilating, and air conditioning systems.

EFFICIENCY (assurances/claims or cost savings)

The capital investment for TABS was $25,200. Annual operation and maintenance fees total $16,300. Savings realized from the measures implemented is estimated at $30,000 + annually.

LEVEL OF PRACTICE *District Wide; Single School*

EF # 123

CONTACT PERSON

Oliver S. Brown
Assistant Superintendent
159 Thorndike Street
Cambridge, Ma. 02141
(617) 498-9253

ENERGY CONSERVATION PRACTICE *Central Berkshire Regional School District*

DESCRIPTION

The energy cost reduction within this district was brought about by a program to make the entire school community aware of the energy situation and to create a commitment to conservation. Energy guidelines for the school year were drawn up and sent to all principals. Each principal was asked to designate an energy manager who was responsible for implementation and monitoring of the guidelines. During the course of the school year the building energy managers attended a series of workshops (one goal setting session and periodic follow-up meetings) to further their efforts. Other energy saving measures were window caulking, lighting modifications, and burner replacement in several buildings.

EFFICIENCY (assurances/claims or cost savings)

For FY '79 the total utilities budget of $193,000 was reduced by $16,000 (electric) and $23,000 (fuel).

LEVEL OF PRACTICE *District*

EF# 110

CONTACT PERSON

Robert A. Gurek, Business Manager
Central Berkshire Regional School
Main Street
Dalton, MA 01226
(413) 684-0322

ENERGY CONSERVATION PRACTICE *Chelmsford Public Schools*

DESCRIPTION

Chelmsford undertook a broad range of conservation techniques appropriate for individual facilities. Two measures, however, applied to all schools--evening temperature setbacks and closure of univent dampers with leakage allowed for ventilation to meet state requirements. New energy efficient inject-air oil/gas burners were leased from the Preferred Utilities Corporation for three schools, while ROSS (Building Operation Service System) was installed in another school for computer control of heating. Burners were measured and adjusted for maximum efficiency and efforts were made to keep steam traps in good repair where applicable. Classrooms in two schools are converting from incandescent to fluorescent lighting as part of this system's conservation program.

EFFICIENCY (assurances/claims or cost savings)

$50,000 has been projected for the first year savings; thereafter, this amount is a minimum projection. The cost of measures installed in the first year was $37,867; ongoing costs are given as $21,454.

LEVEL OF PRACTICE *District Wide*
Individual Classroom

EF# *109*

CONTACT PERSON *Robert Theriouet*
Head of Maintenance Dept.
250 North Road
Chelmsford, MA 01824 (617) 256-7811

ENERGY CONSERVATION PRACTICE *Gateway Regional School District*

DESCRIPTION

The Gateway Regional School District has implemented a comprehensive energy savings program. Heat loss from the building envelope has been reduced, energy inefficient lamps have been replaced, delamping has been completed, and light control has been modified. Use of the secondary schools and several elementary facilities has been limited to two nights and one night per week, respectively. All 3:30 buses have been eliminated at the high school; however, three weekly 5:00 p.m. routes allow continuation of afternoon activities. Greater control of athletic contests with regard to number of games per sport was approved by the school committee and incorporated into the teachers' contract. Recently eighteen areas (of nineteen) in the first phase of "A Two Phase Energy Conservation Program" received school committee approval and are now in effect.

EFFICIENCY (assurances/claims or cost savings)

The projected savings in fuel oil consumption for FY '80 is 30,000 gallons or $15,000. In three years there has been a 200,000 kilowatt-hour drop in electricity use, attributable to lighting modifications in the auditorium/gymnasium. Investments for controls; adjustments for the heating, ventilating, and air conditioning systems; and lighting fixtures tally $18,100.

LEVEL OF PRACTICE *District Wide, Individual Classroom, Single School*

EF# *111*

CONTACT PERSON

Duane L. Wyman
Assistant Superintendent
Littleville Road
Huntington, MA 01050 (413) 667-3475

ENERGY CONSERVATION PRACTICE *Hampshire Regional School District*

DESCRIPTION

In 1974 the Hampshire Regional School District began reviewing expenditures for fuel oil and electricity. Following this initial phase, several committees began a long range program of capital improvements such as insulating buildings and installing new burners. In 1977 an energy manager was trained by the Massachusetts Office of Energy Resources and retrained in 1979. Over a two year period figures show an annual drop of 55,598 gallons in oil consumption and 130,474 kilowatt-hours in electricity usage. The most recent statistics show the possibility for an additional savings of 10 to 26 percent. Program support by all school system personnel is viewed as basic to a successful conservation effort. To further conservation goals, a memorandum to staff members enumerated twenty-one areas for potential savings and solicited additional suggestions.

EFFICIENCY (assurances/claims or cost savings)

Savings of $50,275 are projected for 1979-80 with a total expenditure of $34,157 since 1973.

LEVEL OF PRACTICE *District Wide*

EF# *103*

CONTACT PERSON *Richard E. Dragon*
Assistant Superintendent
Main Street
Williamsburg, MA 01096 (413) 268-7770

ENERGY CONSERVATION PRACTICE *Littleton Public Schools*

DESCRIPTION

Littleton had two specific energy practices to report. One involved the replacement of two hot air furnaces with two steam boilers plus a heat transfer coil. The high school is now heated more efficiently since the boilers run less but provide a steadier heat. Additionally, the coil emits residual heat even when the boilers are not operating. Since the conversion the school's hot water tank has been replaced with five insulated aqua-boosters. The second practice entailed resurfacing and simultaneously insulating the roof over the gym. It was discovered that for slightly twice the price of resurfacing, the gym roof could be insulated by coating a sprayed urethane foam with silicon. Since 1975 there have been no leaks in the roof and a similar approach has been used at another school.

EFFICIENCY (assurances/claims or cost savings)

In FY '78, 92,000 gallons of oil were used at the high school. After the conversion, consumption dropped to 68,000 gallons; a savings of 26 percent. No cost data is available for the gym roof since use of this facility has increased significantly since the time of resurfacing/insulating.

LEVEL OF PRACTICE *District Wide; Single School*

EF# 125

CONTACT PERSON

John Hathaway
Assistant Superintendent for Business
Shattuck Street
Littleton, MA 01773
(617) 486-8951

ENERGY CONSERVATION PRACTICE *Lunenburg Public Schools*

DESCRIPTION

Since 1972, cost for service and maintenance of heating controls has been budgeted at Lunenburg on an annual basis. In addition to the updating and repair of control systems, a system of preventative care was established. Other energy conservation measures include boiler updatings, temperature regulation for days and evenings, lighting alterations, and exterior recaulking and painting. In the spring of 1979, Lunenburg retained an architect to assist in modifying all facilities for compliance with regulations for curriculum, the handicapped, and energy conservation. A preliminary energy audit was completed in the fall of 1979 by the Gardner CETA Consortium and Worcester County Extension Service; the final energy audit is in progress. Both reports will be on file at the Massachusetts Office of Energy Resources.

EFFICIENCY (assurances/claims or cost savings)

A comparison of fuel oil consumption (FY '73 and FY '79) shows a decrease despite increased use of facilities. Reduction of fuel costs is estimated to be 25 percent.

LEVEL OF PRACTICE *District Wide*

EF# *108*

CONTACT PERSON

Burton E. Goodrich, Jr.
Assistant Superintendent
1033 Massachusetts Avenue
Lunenburg, MA 01462 (617) 582-7711

ENERGY CONSERVATION PRACTICE	*Minuteman Regional Vocational Technical School*

DESCRIPTION

Energy conservation was begun at Minuteman when this regional vocational school contracted with the Massachusetts Association of School Business Official (MASBO) for assistance in implementing a viable program. As a beginning point MASBO provided instructional memos to school personnel directing adherence to energy saving practices, constructed a walk-through energy audit, and explained how to interpret computer information. The computer (a microprocessor) was installed by the American Energy Management Corporation in the spring of 1979. It supplies daily usage data for electricity and allows for monitoring and control. Two projects which were begun in 1979, and are slated for completion in 1980, are a relamping program and modifications in the automatic temperature control systems. Curtailment of the operating time for space conditioning fans, reduction in the supply and temperature of domestic hot water, and preventative burner maintenance are representative of other energy saving practices. Reorganization of the school calendar as well as after-school use of the building are under consideration.

EFFICIENCY (assurances/claims or cost savings)

The projected savings for FY '80 total $71,591. Included in this amount is $24,080 attributed to the microprocessor used for control of electricity. Expenditures for the same period are estimated at $25,558.

LEVEL OF PRACTICE *Single School*

EF# *122*

CONTACT PERSON	*Edward Hanlon* *Director of Maintenance* *Lexington, MA 02173* *(617) 861-6500*

ENERGY CONSERVATION PRACTICE *Natick Public Schools*

DESCRIPTION

Concern with reducing energy costs has been a focus in Natick for some time. A recent activity was directed at reducing electrical usage with maintenance or improvement of present lighting. A pilot program was undertaken at the junior high school gymnasium which involved replacing thirty 500 watt incandescent fixtures with twenty-four 250 watt high pressure sodium vapor lamps. Prior to installation of these new lamps an engineering study predicted a 60 percent reduction in electricity consumption while maintaining the existing footcandle level. Based on the success of the completed project a similar replacement program has been started at the high school.*

** A footcandle is a measure of the area and degree of illumination on a given surface.*

EFFICIENCY (assurances/claims or cost savings)

Since there is no separate meter for the gymnasium, specific documentation is not available. The reduction evidenced in the following comparative data is attributed principally to use of the sodium vapor lamps. In October and November 1978, 55,900 and 54,000 kilowatt-hours were used compared to 39,240 and 46,800 kilowatt-hours, respectively, for the same period in 1979. The engineering study predicted an annual savings of $1,483.44 in operating costs.

LEVEL OF PRACTICE *District Wide; Single School*

EF# *126*

CONTACT PERSON

Craig Young
Business Manager
13 East Central
Natick, MA 01760
(617) 653-0550

ENERGY CONSERVATION PRACTICE *North Andover Public Schools*

DESCRIPTION

The goal of this program at North Andover High School was to reduce cost and conserve energy in an all-electric facility which was first occupied in 1973. A complete audit of roof top electric heating units was performed by a heating control company. Concomitantly, the Honeywell BOSS (Building Operation Service System) was installed to permit two full heating seasons as well as the control of building equipment and condition. The year prior to installation, the kilowatt-hour usage was 3.7 million; the following year showed a 2.3 million kilowatt-hour usage or a reduction of 40 percent. Designed to consume an annual 3 million kilowatt-hours, the building is now operating at 24 percent under this original plan with reported improvement in system control and building comfort.

EFFICIENCY (assurances/claims or cost savings)

The first year brought a cost reduction of $53,000 on an investment of $17,000. For subsequent years, a savings of $50,000 + is projected for an ongoing cost of $9,000.

LEVEL OF PRACTICE *Single School*

EF # *107*

CONTACT PERSON

Fred Rex
Assistant to the Superintendent
Atkinson School
North Andover, MA 01845
(617) 682-5231

ENERGY CONSERVATION PRACTICE *Orange Elementary Schools*

DESCRIPTION

Conservation efforts undertaken by the Orange elementary schools included window caulking, the installation of new doors and insulation, and peak burner maintenance. A particularly interesting effort was directed at the heating systems: two pipe systems which have layouts with both hot and cold areas but only one thermostat and one zone to a building. Individual controls have been put on each steam radiator; these thermostatically controlled valves can be set at different temperatures. If there is an immoderate temperature in one area, the local radiator valve will adjust the heat in response to it. New smaller burners have been installed to heat water when heat is not being required from the main system. This latter practice has resulted in additional savings.

EFFICIENCY (assurances/claims or cost savings)

The installation of the valves cost $40 per radiator with an estimated payback period of one year. In FY '74, 62,000 gallons of oil and 341,000 kilowatt-hours of electricity were used. FY '79 showed a decrease to 34,000 and 231,840, respectively.

LEVEL OF PRACTICE *District Wide*

EF # *114*

CONTACT PERSON

David P. Bramhall
Superintendent of Schools
East Main Street
Orange, MA 01364
(617) 544-6763

ENERGY CONSERVATION PRACTICE *Quincy Public Schools*

DESCRIPTION

Plans for the implementation of low cost conversion techniques and potential capital investment measures were undertaken in the fall of 1973. The consolidation of essential after-school programs, reduction in temperature, and after-school drawing of shades and curtains are representative of individual building efforts to conserve heat and light. The Lincoln Hancock Community School, an all-electric elementary school, is opened seven evenings a week and energy usage is very high. However, monitoring revealed that electrical consumption steadily increased 15 percent from January 1974 through June 1978. An in-house investigation yielded the following remedies: the thermostats were cleaned, recalibrated, and placed on walls rather than in air ducts; and the building was rezoned for lighting. Two maintenance men were given instruction in pneumatic controls. In 1979, four fluorescent tubes and one ballast were removed from 500 fixtures and two watt miser tubes were installed. All unit ventilators were adjusted and recalibrated and outside air was reduced in accordance with the state code. Heat was regulated to comply with federal guidelines with maximum evening shutdown.

EFFICIENCY (assurances/claims or cost savings)

The projected saving for FY '80, using FY '78 as the base year, is 860,000 kilowatt-hours or 25 percent of FY '78 consumption. $3,600 was expended for in-house electricians' labor.

LEVEL OF PRACTICE *Individual Classroom(s)*
Single School; District Wide

EF# *118*

CONTACT PERSON

John M. Browne
Plant Director
70 Coddington Street
Quincy, M A 02169
(617) 786-8786

ENERGY CONSERVATION PRACTICE *Tewksbury Public Schools*

DESCRIPTION

The Tewksbury delamping project was completed in a week and a half by a three person maintenance crew trained by an electrician. The plan was developed on the basis of the mandatory lighting code audit. Special emphasis was directed at adequate classroom lighting. In some cases a bulb was removed; in others the ballast (a replaceable attachment to a fluorescent fixture) was also disconnected. It is recommended that this latter disconnection be held for a lighting observation period of one month. In addition to delamping, conservation stickers on light switches increased program visibility and contributed to energy savings by the entire school community.

EFFICIENCY (assurances/claims or cost savings)

At the time the project was being considered the electrical usage for FY '76 was compared to the projected consumption for FY '78. On this basis it was estimated that $17,000 would be saved.

LEVEL OF PRACTICE *District Wide*

EF# *104*

CONTACT PERSON

Frank Antonelli
Administrative Assistant
1469 Andover Street
Tewksbury, MA 01876
(617) 851-6248

ENERGY CONSERVATION PRACTICE *Wellesley Public Schools*

DESCRIPTION

Audits have been completed on all buildings in the Wellesley system. Two resulting energy conservation measures were the modification or installation of windows and doors, and an extensive oil burner project. As with other energy efforts, this latter one was completed over a period of several years. It involved the purchase and installation of eleven oil burners. Other conservation directions focus on maintenance and ongoing education. To insure proper equipment operation, maintenance personnel attended company schools as needed. Monthly instructional sessions on energy and related building operation issues are attended by head custodians who also meet annually on a multi-town basis. All energy seminars offered by the Massachusetts Office of Energy Resources are attended by system personnel

EFFICIENCY (assurances/claims or cost savings)

Over a period of several years, eleven new oil burners have been purchased at a cost of $132,000. The investment has resulted in an annual savings of $25,200 or 15 percent of the system's energy costs.

LEVEL OF PRACTICE *District Wide*

EF# *121*

CONTACT PERSON	*Frederick L. Jaeschke* *Director of Buildings and Grounds* *12 Seaward Road* *Wellesley, MA 02181* *(617) 235-7250 Ext. 121*

ENERGY CONSERVATION PRACTICE *Westfield Public Schools*

DESCRIPTION

As early as 1974, Westfield began a conservation program entailing capital outlay as well as significant involvement by the total school community. This local effort is characterized by the fulltime position of an energy conservation coordinator who was appointed in 1978. The coordinator is a member of the highly effective eight person "house" energy team that meets monthly in an attempt to bring conservation directly into the classroom. Specific tasks include dissemination of an "Energy News Letter" and formulation of recommendations to the staff, superintendent, and school committee. A 15 percent reduction in energy consumption over the preceding year was the goal of the Westfield system for FY '79. In FY '80 it is hoped that this reduction can be increased to 20 percent.

EFFICIENCY (assurances/claims or cost savings)

FY '79 oil consumption was reduced to 496,890 gallons from the 573,178 gallons used in FY '78. For the same period, electrical usage was cut from 3,356,657 to 2,729,563 kilowatt-hours. The combined decreases represented a savings of a little more than $70,000.

LEVEL OF PRACTICE *District Wide*

EF # 112

CONTACT PERSON

James F. Shea
Business Manager
30 West Silver
Westfield, MA 01085
(413) 568-9592 Ext. 407

ENERGY CONSERVATION PRACTICE *Weston Public Schools*

DESCRIPTION

Since the fall of 1973 Weston has adopted a broad-based approach toward energy conservation, directed at energy audit and technical assistance. Common sense changes in operations and maintenance are emphasized. The school system has availed itself of the invaluable expertise of town residents in energy related professions, who have assisted in targeting priority areas. Forecasting long-range maintenance needs has permitted major energy conservation projects to proceed along with facility renewal. One critical program objective is seen as the education of the entire school community.

EFFICIENCY (assurances/claims or cost savings)

Since 1973 there has been an approximate cost savings of $500,000 on an investment of an estimated $60,000. Comparing 1973 to 1979, oil consumption has dropped from 430,398 gallons to 239,433 gallons kilowatt-hours usage has decreased from 2,748,162 to 555,462, and gas usage has decreased by about 50 percent. Overall this has meant a 40 percent reduction in energy usage for this time period.

LEVEL OF PRACTICE *District Wide*

EF# *105*

CONTACT PERSON

William Keane
Director of Buildings & Grounds
89 Wellesley Street
Weston, MA 02193
(617) 899-0620

ENERGY CONSERVATION PRACTICE *Westwood Public Schools*

DESCRIPTION

One specific energy saving practice for this school system consisted of replacing incandescent with fluorescent lights in two schools. Although the total number of watts was reduced, the actual footcandles at the desk-top and blackboard levels increased and both teachers and students found the room brighter. This was a beginning point in a system-wide evaluation of the lighting program, which included elimination of 50 percent of the corridor lighting fixtures, and an efficiency evaluation of exterior lighting. A number of other projects have been completed: all shower heads were replaced with low volume nova heads; the hot water system temperature was lowered to 140°, the pool temperature to 78°. An energy audit has been completed by an architectural firm and is now being studied.*

** A footcandle is a measure of the area and degree of illumination on a given surface.*

EFFICIENCY (assurances/claims or cost savings)

The savings described pertain exclusively to results of lighting modifications. One school had a monthly reduction of 3,720 kilowatt-hours while a second school saved 2,996 kilowatt-hours for this same period.

LEVEL OF PRACTICE *District Wide*

EFS 117

CONTACT PERSON

Leo J. Crowe
Assistant Superintendent for Business Affairs
660 High Street
Westwood, MA 02090
326-7500

ENERGY CONSERVATION SERVICES

Some of the school systems mentioned in this booklet made use of commercial vendors or professional organizations in their plans for conserving energy. The following is a list of those companies or organizations and the services they provide:

AMERICAN ENERGY MANAGEMENT CORPORATION
239 Boylston Street
Boston, MA 02116
262-0534
- *vendor for an in-house microcomputer control system*

HONEYWELL
70 Wells Avenue
Newton, MA 02159
969-0250
- *BOSS (Building Operation Service System)*

JOHNSON CONTROLS, INC.
16 Wheeling Avenue
Woburn, MA 01801
935-6050
- *TABS (Time-shared Automated Building Service)*

MASBO COOPERATIVE CORPORATION
55 Chapel Street
Newton, MA 02160
964-3570
- *a non-profit educational management organization*

MASSACHUSETTS ASSOCIATION OF SCHOOL SUPERINTENDENTS, INC.
18 Tremont Street, Suite 143
Boston, MA 02108
523-4263
- *has an operational Energy Conservation Committee*

MASSACHUSETTS OFFICE OF ENERGY RESOURCES
73 Tremont Street, Room 800
Boston, MA 02108
727-1900
- *prepares a series of energy booklets; operates a grants program for financial assistance, etc.; and conducts conservation seminars and workshops*

PREFERRED UTILITIES MANUFACTURING CORPORATION
11 South Street
Danbury, CT 06810
(203) 743-6741
- *offers equipment leasing arrangements*

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Staff in the regional centers can also be contacted for more information:

CENTRAL MASSACHUSETTS REGIONAL CENTER
Beaman Street, Route 140
West Boylston, Massachusetts 01583
617-835-6267

GREATER BOSTON REGIONAL CENTER
54 Rindge Avenue Extension
Cambridge, Massachusetts 02140
617-547-7472

NORTHEAST REGIONAL CENTER
219 North Street
North Reading, Massachusetts 01864
617-727-0600

PITTSFIELD REGIONAL CENTER
188 South Street
Pittsfield, Massachusetts 01201
413-499-0745

SOUTHEAST REGIONAL CENTER
P.O. Box 29
Lakeville, Massachusetts 02346
617-947-3240

SPRINGFIELD REGIONAL CENTER
155 Maple Street
Springfield, Massachusetts 01105
413-734-2167